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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,873	10/24/2001	Wen Lin	LIN 11-34	7502

27964 7590 07/23/2003

HITT GAINES P.C.
P.O. BOX 832570
RICHARDSON, TX 75083

EXAMINER

MALDONADO, JULIO J

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/003,873

Applicant(s)

LIN ET AL.

Examiner

Julio J. Maldonado

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 8-16 and 28-36 is/are pending in the application.
- 4a) Of the above claim(s) 28-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8, 12, 15 and 16 is/are rejected.
- 7) ☒ Claim(s) 9-11, 13 and 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 8-16 in Paper No. 6 is acknowledged.

Claim Objections

2. Claims 15 and 16 are objected to because of the following informalities: in claims 15 and 16 where applicants cite "...wherein forming...", replace with "...wherein the forming...". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In reference to claim 12, applicants cite, "...a dopant concentration of the fourth doped lattice matching layer is greater than the dopant concentration of the fourth doped lattice matching layer...". This renders the claim indefinite since it teaches a layer having a dopant concentration greater than a dopant concentration of the same layer. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 8, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa et al. (U.S. 4,378,259).

Hasegawa et al. in a related method to form doped epitaxial layers teach forming a first doped lattice matching layer over a doped substrate; creating a doped buried layer over the first doped lattice matching layer; producing a second doped lattice matching layer over the doped buried layer; producing a second doped lattice matching layer over the doped buried layer; and placing a doped epitaxial layer over the second doped lattice matching layer; wherein the forming, creating, producing, and placing, includes forming, creating, producing, and placing using a chemical vapor deposition process and in a single deposition chamber (column 3, line 32 – column 4, line 65).

Allowable Subject Matter

7. Claims 9-11, 13 and 14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, Hasegawa et al. to U.S. 4,378,259, teach a related method to form doped epitaxial layers including forming a first doped lattice matching layer over a doped substrate; creating a doped buried layer over the first doped lattice matching layer; producing a second doped lattice matching layer over the doped buried layer; producing a second doped lattice matching layer over the doped buried layer; and

placing a doped epitaxial layer over the second doped lattice matching layer; wherein the forming, creating, producing, and placing, includes forming, creating, producing, and placing using a chemical vapor deposition process and in a single deposition chamber (column 3, line 32 – column 4, line 65).

Hasegawa et al. fail to teach wherein forming and producing includes forming and producing first and second doped lattice matching layers each having a dopant concentration less than a dopant concentration of the doped buried layer; wherein a dopant concentration of the doped substrate is less than the dopant concentration of the first doped lattice matching and a dopant concentration of the doped epitaxial layer is less than the dopant concentration of the second doped latticed matching layer; further including a third doped lattice matching layer between the first doped lattice matching layer and the doped buried layer and forming a fourth doped lattice matching layer between the second doped lattice matching layer and the doped buried layer; and wherein forming and producing each of the first and second doped lattice matching layer includes forming and producing a dopant gradient wherein a dopant concentration of each of the dopant gradients is greater adjacent the doped buried layer.

Conclusion

9. Papers related to this application may be submitted directly to Art Unit 2823 by facsimile transmission. Papers should be faxed to Art Unit 2823 via the Art Unit 2823 Fax Center located in Crystal Plaza 4, room 3C23. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (15 November

Application/Control Number: 10/003,873
Art Unit: 2823

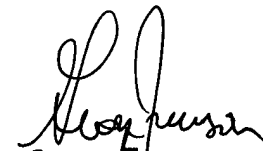
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1989). The Art Unit 2823 Fax Center number is **(703) 305-3432**. The Art Unit 2823 Fax Center is to be used only for papers related to Art Unit 2823 applications.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Julio J. Maldonado** at **(703) 306-0098** and between the hours of 8:00 AM to 4:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via julio.maldonado@uspto.gov. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Group 2800 Receptionist** at **(703) 308-0956**.

JMR
7/9/03



George Fourson
Primary Examiner